Abstract

The invention relates to a method and apparatus for growing a thin film onto a substrate, in which method a substrate placed in a reaction space (21) is subjected to alternately repeated surface reactions of at least two vapor-phase reactants for the purpose of forming a thin film. According to the method, said reactants are fed in the form of vapor-phase pulses repeatedly and alternately, each reactant separately from its own source, into said reaction space (21), and said vapor-phase reactants are brought to react with the surface of the substrate for the purpose of forming a solid-state thin film compound on said substrate. According to the invention, the gas volume of said reaction space is evacuated by means of a vacuum pump essentially totally between two successive vapor-phase reactant pulses. By virtue of transporting the different starting material species at different times through the apparatus effectively isolates the starting materials from each other thus preventing their premature mutual reactions.